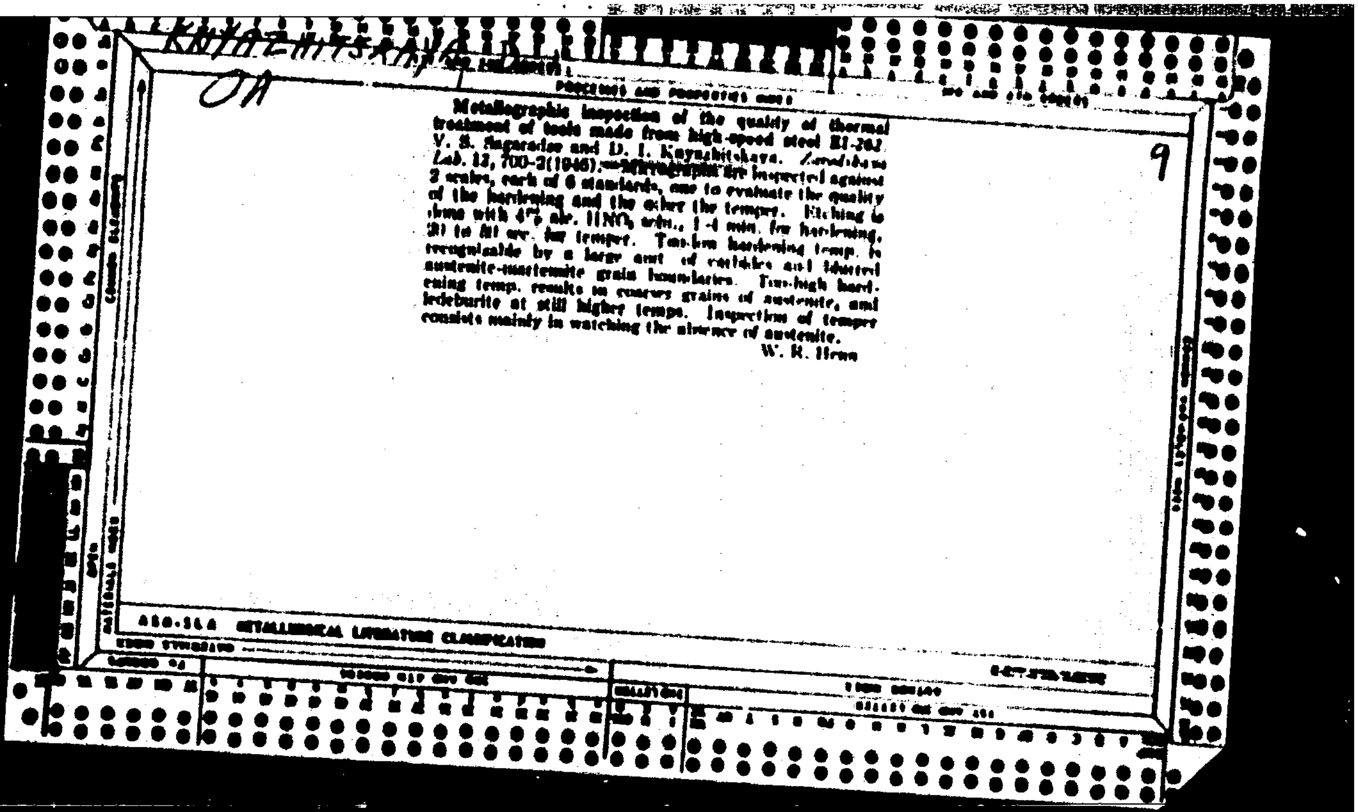
Begin

REEL # 234

Knyazhitskaya, D.I



KNYAZHITSKAYA, D. I.

PROCESSES AND PROPERTIES INDEX

9

Metallographic inspection of the quality of thermal treatment of tools made from high-speed steel EI-262. V. S. Sagaradze and D. I. Knyazhitskaya. *Zavodskaya Lab.* 12, 700-2(1946).—Micrographs are inspected against 2 scales, each of 6 standards, one to evaluate the quality of the hardening and the other the temper. Etching is done with 4% alc. HNO_3 soln., 1-4 min. for hardening, 20 to 60 sec. for temper. Too-low hardening temp. is recognizable by a large amt. of carbides and blurred austenite-martensite grain boundaries. Too-high hardening temp. results in coarse grains of austenite, and ledeburite at still higher temps. Inspection of temper consists mainly in watching the absence of austenite.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KNYAZHITSKIY, A.I.; KRASAVIN, Yu.K.

Automatic machine for drilling holes in nipples. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 17 no.6: 49-50 Je '64. (MIRA 17:11)

KNYAZHITSKIY, A.I.; TRUSHECHKIN, V.D.

Semiautomatic multispindle drilling and counterboring machine unit for drilling holes in pipes. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 17 no.3:43-44 '64.
(MIRA 17:9)

KNYAZHITSKIY, O. M. and G. M. NIKOLAEVSKII.

Mashinist zalivochnogo, stalerazlivochnogo i miksernogo kranov. Sverdlovsk, Metallurgizdat, 1942. 85, (1) p., il. illus., diagrs. (V pomoshch' rabochim massovykh professii)

Operator of filling plugs, steel-teeming cranes and mixers.

DLC: TJ1363. K6

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

KNYAZHITSKIY, G.; MEYCHIK, R.

Telegraph, Wireless

Training of radio-Telegraphists. Radio No. 9, 1952.

Monthly List of Russian Accessions, Library of Congress, December 1952, UNCLASSIFIED

1. MEYCHIK, R., KNYAZHITSKIY, G.

2. USSR (600)

4. Radio-Operators

7. Training radio-telegraph operators.
Radio. No.10, 1952

9. *Monthly List of Russian Accessions*, Library of Congress, January 1953. Unclassified.

1. KNYAZHITSKIY, O. and MEYCHIK, R.

2. USSR (600)

4. Radio Operators

7. Training radio-telegraphers. Radio no. 12, 1952.

9.. Monthly List of Russian Accessions, Library of Congress, March 1953, Unclassified.

KNYAZHITSKIY, G.M.

VRUBLEVSKIY, A.V.; GRIGOR'YANTS, G.N.; ZHUKOV, D.P.; KNYAZHITSKIY, B.M.
KARUS', A.P., inzhener-mayor, redaktor; SOKOLOVA, O.F., tekhnicheskiy redaktor.

[Electric engineering; textbook for soldiers and sergeants] Elektrotekhnika; uchebnik dlia soldat i serzhantov. Moskva, Voen.izd-vo Ministerstva obor. soiuza SSSR, 1955. 327 p. (MLRA 8:12)
(Electric engineering)

VRUBLEVSKIY, Aleksandr Vikent'yevich; GRIGOR'YANTS, Georgiy Nikolayevich; ZHUKOV, Dmitriy Petrovich; KNYAZHITSKIY, Grigoriy Mikhaylovich; KARUS', A.P., inzhener-mayor, redaktor; SOKOLOVA, G.F., tekhnicheskiy redaktor

[Electric engineering; a manual for privates and non-commissioned officers] Elektrotekhnika; uchebnik dlia soldat i serzhantov. Izd. 2-oe, ispr. i dop. Moskva, Voen. izd-vo Ministerstva obor. SSSR, 1956. 341 p. (MLRA 9:12)
(Electric engineering)

KNYAZHITSKIY, G. M.

Telecommunications engineering

Telegrafiya: uchebnoe posobie.
Moscow, Izdatel'stvo Dosarm, 1951.
pp. 191, diags., tables, bibliogs.; 23 x 15.

LXIII

KNYAZHITSKIY, Grigoriy Mikhaylovich; KOSTYLEV, Ivan Georgiyevich; BOYKOV, M.A., red.; SOKOLOVA, G.F., tekhn.red.

[An aid for training telegraph operators in the use of telegraph apparatus] Posobie po obucheniiu telegrafistov rabote na apparatakh. Moskva, Voen.izd-vo M-va obor.SSSR, 1960. 142 p. (MIRA 13:5)

(Telegraph--Handbooks, manuals, etc.)

VRUBLEVSKIY, Aleksandr Vikent'yevich; GRIGOR'YANTS, Georgiy Nikolayevich; ZHUKOV, Dmitriy Petrovich [deceased]; KNYAZHITSKIY, Grigoriy Mikhaylovich; KAHUS', A.P., inzh.-podpolkovnik, red.; MEDNIKOVA, A.N., tekhn.red.

[Electrical engineering; textbook for enlisted men] Elektrotekhnika; uchebnik dlia soldat i serzhantov. Izd.3., ispr. i dop. Moskva, Voen.izd-vo M-va obor.SSSR, 1960. 359 p. (MIRA 13:7)
(Electric engineering--Handbooks, manuals, etc.)

VRUBLEVSKIY, Aleksandr Vikent'yevich; GRIGOR'YANTS, Georgiy
Nikolayevich; ZHUKOV, Dmitriy Petrovich [deceased];
KNYAZHITSKIY, Grigoriy Mikhaylovich; KARUS', A.P.,
red.; MEDNIKOVA, A.N., tekhn. red.

[Electrical engineering; a manual for soldiers and sergeants]
Elektrotekhnika; uchebnik dlia soldat i serzhantov. Izd.4.,
ispr. i dop. Moskva, Voenizdat, 1964. 351 p. (MIRA 17:3)

BARSHTAK, N.M.; BYKOVA, Z.Ya.; KLUGMAN, I.Yu.; KNYAZHITSKIY, I.I.;
RASHKOVICH, M.P.

Induction dividing mechanisms. Stan. i instr. 27 no.11:7-8 N '56.
(Dividing engine)
(MIRA 10:1)

KNYAZHITSKIY, I. I.

"Work in the Machine Factory." imeni S. M. Kirov in Odessa "

Programmed Control of Metal Cutting Machines, report presented at
All-Union Conference, Moscow, 13-16 Nov 1957
Vestnik Ak. Nauk SSSR, 1958, No. 2, pp. 113-115, (author Kobrinskiy, A. Ye.)

KNYAZHITSKIY, I.I.

PHASE I BOOK EXPLOITATION SOV/3702

Moscow. Dom nauchno-tekhnicheskoy propagandy imeni F.E. Dzerzhinskogo

Programmnoye upravleniye metallorezhushchimi stankami (Program Control of Metal-Cutting Machine Tools) Moscow, 1958. 51 p. (Series: Peredovoy opyt proizvodstva. Seriya "Kompleksnaya avtomatizatsiya i mekhanizatsiya protsessov proizvodstva v mashinostroyenii," vyp. 3/4) 3,000 copies printed.

Ed.: B.A. Vorodin; Tech. Ed.: R.A. Sukhareva.

PURPOSE: This booklet is intended for skilled workers and technicians active in the field of automatic control of metal cutting.

COVERAGE: The booklet contains two articles which discuss obstacles to the development of automation of machine tools. The authors make recommendations for application of various automation systems depending on the type of work and on manufacturing conditions. The machine tools in question were equipped with programming systems. No personalities are mentioned. There are 3 references, all Soviet.

Card 1/2

Program Control of Metal-Cutting Machine Tools SOV/3702

TABLE OF CONTENTS:

Kaufman, L.M. Designing Path Transmitters for a Programming Control System Without Tracers for Metal-Cutting Machine Tools 3
The author discusses requirements for automation systems for machine tools and their most expedient application, compares systems with and without tracers, and makes suggestions for the most feasible operational methods and means.

Knyazhitskiy, I.I. Machine Tools With Program Control 31
The author describes the working principle of three jig-boring machines produced experimentally at the Odessa Plant imeni Kirov as part of an automation plan.

AVAILABLE: Library of Congress

Card 2/2

VK/mas
6/27/60

KNYAZHITSKIY -

SOV/115-58-1-6/50

AUTHORS: Barshtak, N.M., Bykova, Z.Ya., Klugman, I.Yu., Knyazhitskiy, I.I., and Rashkovich, M.P.

TITLE: An Integral Method of Dividing Circles (Integral'nyy metod deleniya okrushnosti)

PERIODICAL: Izmeritel'naya Tekhnika, 1958, Nr 1, pp 16 - 17 (USSR)

ABSTRACT: The article describes a method and mechanism for precise graduating. The mechanism is actuated by electric inductance. It consists of a toothed fixed core and a toothed rotating ring (Fig. 2), each core tooth carrying an inductance coil. All coils are connected between themselves and into a phase-sensitive circuit (Fig. 3). The inductance of the indicator changes with the changing gap between the teeth on the core and on the ring when the ring rotates. The auxiliary inductance automatically returns the circuit indicator back to zero position. The mechanism is called "integral" because the inductance of the indicator equals the summary inductance of the coils. As the parts of the mechanism operate without contact, they require no precision machining. The method has been tested on a experimental "integral" device for dividing a circle into 360 parts. Even with this

Card 1/2

An Integral Method of Dividing Circles SOV/115-58-1-6/50

experimental device which was rather inaccurately-made and had a pitch error of about 4 min, the reading error was 60 times smaller, than the mechanical production error of the parts of the measuring device. The inductance mechanism is simple and can be produced on gear shapers. There are 3 diagrams.

1. Machine tools--Design 2. Machine tools--Performance
3. Machine tools--Test results

Card 2/2

KNYAZHITSKIY, I.I.

The 2P430-type program-controlled jig boring machine. Biul. tekh.-ekon.inform. no.8:26-30 '59. (MIRA 13:1)
(Drilling and boring machinery)

KNYAZHITSKIY, I.I.; BERNSHTEYN, L.M.

[redacted]

The OF-41 program-controlled vertical milling machine.
Biul.tekh.-ekon.inform. no.7:20-22 '60. (MIRA 13:7)
(Milling machines--Numerical control)

KNYAZHITSKIY, IOSIF IL'ICH

Stanki budushchego [by] I. Knyazhitskiy Odessa, Odesskoye Knizhnoye Izd-vo, 1960. and G. UST'-SHOMUSHSKIY

72 p. illus., diagrs., tables.

At head of title: Russia. Tsentral'noye Byuro Tekhnicheskoy Informatsii. Odesskogo Sovnarkhoza.

KNYAZHITSKIY, Iosif Il'ich; UST'-SHOMUSHSKIY, Georgiy Veniaminovich;
RUBIN, M., red.

[Machine tools of the future] Stanki budushchego. Odessa,
Odesskoe knizhnoe izd-vo, 1960. 79 p. (MIRA 15:4)
(Machine tools--Numerical control)

S/121/63/000/003/001/005
E194/E455

AUTHOR: Knyashitskiy, I.I.

TITLE: Compensation of temperature errors in precision coordinate drilling machines

PERIODICAL: Stanki i instrument, no.3, 1963, 4-7

TEXT: Precision coordinate drilling machines are subject to temperature error of location, even in thermostated workshops, because of various local heat sources. The horizontal arm carrying the vertical spindle usually expands more than the bed and can easily produce a hole location error of 20 μ. This error can be corrected by either of two methods. The firm of F.Deckel uses a system in which the spindle head is mounted on stiff flat springs and as the arm expands in one direction an internal (expanding) arm deflects the springs in the opposite direction. The construction is complicated and compensation not complete. In the second type of system, as used in machines type 2A430 of the Odesskiy zavod im. Kirova (Odessa Works imeni Kirov), expansion of the arm is compensated by displacing the origin of coordinates of the measuring system. To achieve this, thermistors are fitted in the machine at positions where the temperature rise

Card 1/3

S/121/63/000/003/001/005
E194/E435

Compensation of temperature ...

is directly proportional to displacement of the spindle arm. These thermistors are in a bridge circuit which also includes the inductive pick-ups used for measuring the location of the drilling head. As temperature differences appear in the drilling machine, the thermistor resistances alter and the zero reading of the location circuit, which depends on the position of the pick-up relative to the reference screw, is altered. In designing the circuit the thermistors are selected according to empirical graphs; one is of spindle displacement against temperature change at point of installation and the other is of coordinate origin displacement against resistance change of thermistors. The thermistor resistance must not be affected by the current passing through it. Expressions are given by which, with the specific system used, the initial resistance of the thermistor and the number of units from which it should be built up are selected. It is not always possible to find a position in the machine at which the temperature is directly proportional to displacement of the arm and, moreover, any single position may not suit all circumstances. Accordingly, the machine frame is subdivided into

Card 2/3

Compensation of temperature ... S/121/63/000/003/001/005
E194/E455

a number of sections and a suitable thermistor location is selected for each. Then the thermistors are grouped to provide overall compensation. In the case of precision drilling machines type 2A430 it was found that the compensating system started to operate after the machine had been running for about half an hour after which time it was possible to machine specially accurate parts. In the absence of the system a warming-up period of about three hours was necessary. Moreover, after some hours of operation, the use of compensation reduced the spindle displacement from over twenty microns to less than ten. This method of compensation will probably be useful in other machine tools. There are 7 figures.

Card 3/3

L 27349-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l)

ACC NR: AP6007725 (A) SOURCE CODE: UR/0413/66/000/003/0137/0138

AUTHORS: Zbarskiy, Yu. Sh.; Knyazhitskiy, I. I.; Krasnyanskiy, A. S.; Nayerman, M. S.

29
B

ORG: none

TITLE: Device for honing a cylindrical surface. Class 67, No. 178708

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 3, 1966, 137-138

TOPIC TAGS: machine tool, honing

ABSTRACT: This Author Certificate presents a device for honing a cylindrical surface with abrasive bars automatically forced apart inside the machined hole by a hydraulic drive. To provide continuous automatic control of the cutting regimes of the abrasive bars during the cutting process, the device is equipped with a monitoring system having feedback of the power required to turn the honing head (see Fig. 1). This feedback provides a hydraulic pressure level which increases the specific tool pressure of the bars as the surface roughness of the machined part decreases. To provide periodic pressing apart of the cutting bars over the working length of

Card 1/2 UDC: 621.923.5.02

L 27349-66

ACC NR: AP6007725

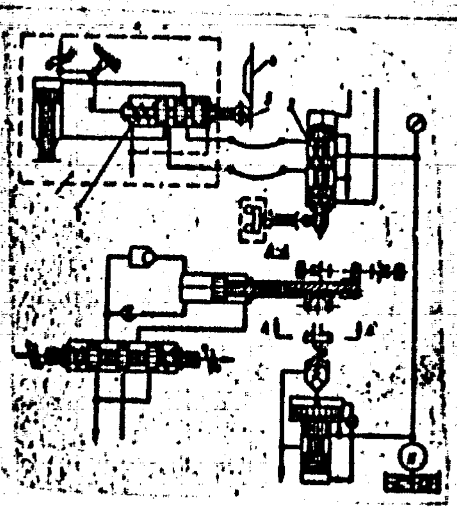


Fig. 1. 1 - honing head; 2 - motion reversing valve; 3 - auxiliary valve; 4 - cam; 5 - roller.

the opening without changing the head diameter during over-travel, an additional feature provides an auxiliary valve between the valve which reverses the hydraulic piston motion and the cylinder of the hydraulic drive. This valve is actuated during the axial oscillating motion of the honing head by a stationary cam. Orig. art. has: 1 figure.

Card 2/2 PB SUB CODE: 13/ SUBM DATE: 28Jun62

KHVATOV, Yu.A., inzh.; VILENKIN, D.M., inzh.; KNYAZHITSKIY, Yu.A., inzh.

New durable designs of lining plates for ore grinding mills. Gor. zhur. no.12:31-35 D '63. (MIRA 17:3)

1. Novo-Krivorozhskiy gornoobogatitel'nyy kombinat.

L 30591-66 EWT(j)/EWT(m) IJP(c) RM

ACC NR: AR6011878

SOURCE CODE: UR/0081/65/000/016/S061/S061

AUTHOR: Britsyn, N. L.; Shelina, T. A.; Knyazhskaya, G. S.

32
B

TITLE: Welding 15 of polyamides 16 by heating in a high-frequency electric field

SOURCE: Ref. zh. Khimiya, Abs. 16S427

REF SOURCE: Tr. Vses. n.-i. in-ta tokov vysokoy chastoty, vyp. 5, 1964, 131-138

TOPIC TAGS: welding, polyamide

ABSTRACT: In the HF welding of polyamides of Soviet brands P-68, P-6, P-8, P-10, and also Rilsan, tricresol was introduced into the weld zone in order to increase the range of the visco-fluid state. The welding was carried out at a frequency of 27 Mc by limiting the final gap, equal to the single thickness of the material. This type of welding does not decrease the mechanical strength of the polyamides because of the short duration of the heating. A change in the mechanical strength of the polyamide weld joint with time (6 months in closed storage and under atmospheric conditions) was demonstrated. The data of experimental investigations were utilized in the development of a technological process for sealing storage battery tanks. V. Pruslin. [Translation of abstract]

SUB CODE: 13,11

Card 1/1

KNYAZHKIN, V. I.

"Some Questions on the Theory and Design of a Generator Located Beneath a Railroad Car." Cand Tech Sci, Leningrad Order of Lenin Inst of Railroad Transport Engineers imeni Academician V. N. Obraztsov, Min Transportation USSR, Leningrad, 1955. (KL, No 12, Mar 55)

SO: Sum. No. 670, 29 Sep 55-Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

KNYAZHKIN, V.I., kand.tekhn.nauk

Dynamic loads on the drive of electric generators located under cars. Sbor.LIIZHT no.160:82-103 '58. (MIRA 12:5)
(Electric generators) (Railroads--Cars)

KNYAZ'KOV, B.

BelAZ-540 dump truck. Avt. transp. 41 no.3:43-46 Mr '63.
(MIRA 16:4)

(Dump trucks)

L 46195-66 EWT(1)

ACC NR: AP6023862 SOURCE CODE: UR/0108/66/021/007/0069/0071

AUTHOR: Yanovskiy, M. S. (Active member); Knyaz'kov, B. M. (Active member)

55

B

ORG: Scientific and Technical Society of Radio Engineering and Electro-Communications im. A. S. Popov (Nauchno-tekhnicheskiy obshchestvo radiotekhniki i elektrosvyazi)

TITLE: On the possibility of reducing the spectral distortion and spectral widening of a continuous waveguide phase shifter

25

SOURCE: Radiotekhnika, v. 21, no. 7, 1966, 69-71

TOPIC TAGS: phase shifter, phase shift, waveguide, microwave, circular waveguide

ABSTRACT: Polarization waveguide phase shifters used in microwave work, especially as precision phase shifters and single-band waveguide modulators, are discussed. The basic elements of these phase shifters are sections of a non-isotropic waveguide which introduce a frequency dependent differential phase shift between the orthogonal components of the electromagnetic field within the waveguide. The waveguide is shown in figure and its operation is discussed. The phase shifter is analyzed as an equivalent eight-terminal network. A matrix of coefficients is given which describes transmission between any two sets of terminals. A method for the reduction of elimination of spurious output components is discussed. The phase shifter is compared with a phase shifter discussed by A. G. Fox (*Proc. IRE*, Vol. 35, No. 12, 1947): useful output signal, level of spurious responses, and phase error. A graph illustrates the

Card 1/2 UDC: 621.372.852

L 23996-66 EWT(1)/EWA(h)

ACC NR: AP6009842

SOURCE CODE: UR/0413/66/000/004/0034/0034

AUTHOR: Yanovskiy, M. S.; Knyaz'kov, B. M.

ORG: none

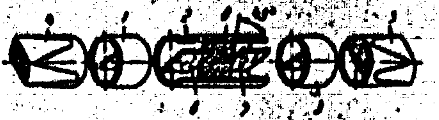
35
B

TITLE: A continuous waveguide phase shifter. 16 Class 21, No. 178870

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 34

TOPIC TAGS: waveguide, phase shifter, SHF

ABSTRACT: This Author's Certificate introduces a continuous waveguide phase shifter consisting of differential phase sections in the form of lengths of a circular waveguide and circular-to-square waveguide sections. Spurious components in the spectrum of the SHF signal are suppressed to increase the accuracy of the phase setting by using two dielectric plates in the center section for 90° differential phase shifts. An absorber plate in the form of a film resistor is mounted between these dielectric plates at an angle of 45°.



1-3--phase sections (2--center section); 4 and 5--circular-to-square waveguide sections; 6 and 7--dielectric plates; 8--absorber plate

SUB CODE: 09/ SUBM DATE: 04Apr64/ ORIG REF: 000/ OTH REF: 000

Card 1/1 UDC: 621.372.852.21

27591
S/108/61/016/010/004/006
D209/D306

9,1300 (1144)

AUTHORS: Yanovskiy, M.S., and Knyaz'kov, B.N., Members of the Society

TITLE: A polarization-type wave guide modulator

PERIODICAL: Radiotekhnika, v. 16, no. 10, 1961, 26 - 27

TEXT: This is an abstract prepared by the author of his own article. In solving many problems the need arises to transform the SHF oscillations of frequency ω into the oscillations having two frequencies, differing from each other by a certain small magnitude. Such a transformation can be achieved by using a waveguide modulator belonging to the instruments of polarization type. The principle of operation of such a modulator is as follows: Two rectangular-to-circular waveguide transition sections I and IV, each having an absorption vane parallel to the wide walls of the wave guide, placed at both ends of the modulator transform the H_{10} wave into H_{11} or [illegible] versa, the transformation being accompanied by the absorption of the tangential

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A polarization-type wave ... S/108/61/016/010/004/006
D209/D306

component of the field. Between the two transition-sections are placed 2 sections II and III of a circular waveguide. Section II has in its axial plane a sheet of dielectric and introduces thus between the two field components, the one polarized in the plane of the sheet and the other perpendicular to it, a differential phase shift by 180° (the Δ 180° section). The second section III introduces between the two field components a differential phase shift of 90° (Δ 90° section) the Δ 180° section II is rotated with a velocity Ω rev/sec. The position angle of the Δ 90° section with respect to the fixed section (angle $\varphi + 45°$) is adjustable. The linearly polarized wave $E \sin \omega t$ at the input of the Δ 180° section may be represented as a superimposition of two circularly polarized oscillations. After passing through the revolving Δ 180° section the angular velocity of one of the oscillations increases by $+2\Omega$ and the other by -2Ω. The Δ 90° section transforms these two into linearly polarized oscillations, at 90° with respect to each other and at 45° to the plane of the sheet of the Δ 90° section. The position angle of the Δ 90° section relative to transition determines the amplitudes of these oscillations at the output:

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A polarization-type wave ...

S/108/61/016/010/004/006
D209/D306

$$\left.\begin{aligned} e_+ &= \frac{1}{\sqrt{2}} E \sin\varphi \sin(\omega + 2\Omega)t \\ e_- &= \frac{1}{\sqrt{2}} E \cos\varphi \sin(\omega - 2\Omega)t \end{aligned}\right\}. \qquad (1)$$

The power averaged over one period at the output is independent of angle φ. It constitutes one half of the input power which may be easily seen from Eq. (1). If the differential phase shift in sections II and III differs from 180° and 90° by δ_2 and δ_3 respectively, the spectrum at the output will have the component of frequency ω and changed amplitudes of side band frequency components

$$\left.\begin{aligned} e_0 &= \frac{1}{2} E \sin\frac{\delta_2}{2} \sqrt{3 - \cos 4\varphi(1 + \sin\delta_3) - \sin\delta_3} \sin\omega t \\ e_+ &= \frac{1}{\sqrt{2}} E \sin\varphi \cos\frac{\delta_2}{2} \sqrt{\frac{1 - \cos 2\varphi \cos\delta_3}{1 - \cos 2\varphi}} \sin(\omega + 2\Omega)t \\ e_- &= \frac{1}{\sqrt{2}} E \cos\varphi \cos\frac{\delta_2}{2} \sqrt{\frac{1 + \cos 2\varphi \cos\delta_3}{1 + \cos 2\varphi}} \sin(\omega - 2\Omega)t \end{aligned}\right\}. \qquad (2)$$

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A polarization-type wave ... S/108/61/016/010/004/006
D209/D306

Another type of modulator is also possible which produces at the output two frequencies, one equal to the input frequency ω and one other differing from it either by $+2\Omega$ or -2Ω, depending on the direction of rotation of the waveguide phasing section. This modulator differs from the previous one in that a fixed Δ 90° phasing section is placed after the first transition section; the dielectric sheet is placed at an angle of 45° to the vane in the transition section and instead of a Δ 180° section the Δ 90° section III is rotated. The relationship between the amplitudes of frequencies ω and $\omega + 2\Omega$ or $\omega - 2\Omega$ depends exactly in the same manner on the positioning of the last Δ 90° section IV with respect to the transition section V and can be, as in the previous case, regulated. It can be shown that with the signal propagating through the modulator in the opposite direction with the same direction of revolution of the phasing section, an inverse relationship exists between the oscillations amplitude at the output, as if the direction of rotation was changed without the change in the direction of propagation. It is stated in conclusion that instead of a rotating Δ 180° or

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42668

9.3272
9.3273

S/142/62/005/005/002/009
E192/E382

AUTHORS: Yanovskiy, M.S. and Knyaz'kov, B.N.

TITLE: Frequency spectrum of single-sideband waveguide-modulators

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, v. 5, no. 5, 1962, 552 - 556

TEXT: Small shifts of frequency spectra at UHF can be produced by single-sideband waveguide-modulators of the polarized type (A.G. Fox, PIRE, 1947, 35, no. 12, 1489). Such a modulator is represented in Fig. 2 and it consists of so-called differential phase sections I, II and III, which are made of sections of an anisotropic waveguide; these introduce a known phase-shift between the two field components which are polarized along the major axes, x and y of the sections. Sections I and III, whose principal axes are at an angle of 45° with respect to the polarization plane of the excitation wave, introduce a differential phase-shift of $\pi/2$ (90°-sections), while section II, whose plane of anisotropy can be rotated, introduces a differential phase-shift of π (180°-section). Section I transforms the linearly polarized

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Frequency spectrum S/142/62/005/005/002/009
E192/E382

signal into a circularly polarized wave while section III performs the reverse transformation. When a sinusoidal non-modulated signal $E \sin \omega t$ is applied to the input of the device and the plane of anisotropy of the 180°-section is rotated with an angular velocity $\pm \Omega$, the signals obtained at the output are e_o, e_ω and e_3 ; e_o is the useful signal shifted in frequency by $\pm 2\Omega$, e_ω is a component having the frequency of the input signal and e_3 is a component having the "image" frequency $\omega \mp 2\Omega$; the amplitudes of these components depend on $\alpha_i = E_{yi\,out}/E_{yi\,in}$ and $E_{xi\,out}/E_{xi\,in} = \beta_i$, where E_{xi} and E_{yi} are the attenuated components of the field. The spectrum at the output of the device can be "improved" by directing the principal axes of the 90°-section at an angle:

$$\gamma_1 = \arctan \frac{\alpha_1}{\beta_1} \qquad (1).$$

Card 2/5

In this case, the wave at the output of the 90°-section will be circularly polarized. The signal at the output will contain frequencies $\omega + 2\Omega$ or $\omega - 2\Omega$; on the other hand, at the output of the 90°-section III a signal of frequency ω will be obtained but this is polarized in the plane of the attenuation plate of the waveguide transition sections and is absorbed by it. In the case when the differential phase shift differs from 90 and 180° it is assumed that the shifts in sections I, II and III are $\pi/2 + \delta_1$, $\pi + \delta_2$ and $\pi/2 + \delta_3$. The spectrum components at the output of the device are now in the form:

$$e_1 = \alpha E \cos\frac{\delta_1}{2}\cos\frac{\delta_2}{2}\cos\frac{\delta_3}{2}\sin[(\omega \pm 2\Omega)t + \varphi];$$

$$e_\omega = -\alpha E \sin\frac{\delta_2}{2}\sin\frac{\delta_1+\delta_3}{2}\sin(\omega t + \varphi); \qquad (2)$$

$$e_2 = -\alpha E \sin\frac{\delta_1}{2}\cos\frac{\delta_2}{2}\sin\frac{\delta_3}{2}\sin[(\omega \mp 2\Omega)t + \varphi].$$

where

$$\varphi = \frac{\delta_1+\delta_2+\delta_3}{2} \text{ И } \alpha = \alpha_1\alpha_2\alpha_3.$$

Card 3/5

Frequency spectrum S/142/62/005/005/002/009
E192/E382

From Eqs. (2) it is seen that e_3 can be suppressed if either section I or III gives an accurate 90° differential shift; on the other hand, e_ω can be eliminated if $\delta_2 = 0$ or $\delta_1 = -\delta_3$. The error in measuring the phase-shift Θ by means of such a single sideband modulator is determined for the case of square-detectors used in balanced and non-balanced mixers. The maximum error for an unbalanced mixer is shown to be:

$$\Delta\Theta_M = \pm \text{arc tan} \frac{E_3}{E_0} \approx \pm \frac{E_3}{E_0} \qquad (5).$$

On the other hand, the maximum error for a balanced mixer at δ_1 and δ_3 is given by:

$$\Delta\Theta_M = \pm \frac{\delta_1 \delta_3}{4}.$$

This indicates the necessity of accurate adjustment and the use of wideband 90° phase-shift sections in the modulators.
There are 3 figures.

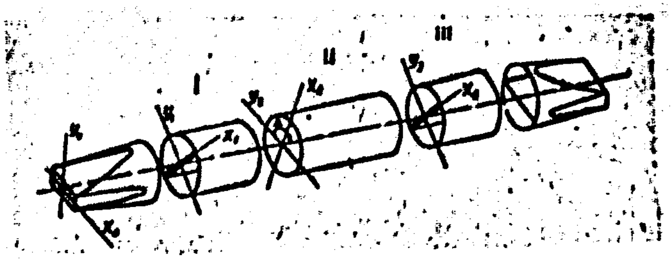
Card 4/5

Frequency spectrum S/142/62/005/005/002/009
E192/E382

ASSOCIATION: Institut radiofiziki i elektroniki AN UkrSSR (Institute of Radiophysics and Electronics of the AS UkrSSR)

SUBMITTED: December 25, 1961

Fig.2



Card 5/5

YANOVSKIY, M.S.; KNYAZ'KOV, B.N.

Frequency spectrum of single-band wave guide modulators. Izv. vys.ucheb.zav.; radiotekh 5 no.5:552-556 S-O '62. (MIRA 15:11)

1. Rekomendovana Institutom radiofiziki i elektroniki AN UkrSSR.
(Microwaves)

YANOVSKIY, M.S.; KNYAZ'KOV, B.N.

Amplitude modulation of oscillations in a waveguide.
Radiotekhnika 17 no.12:33-37 D '62. (MIRA 15:12)

1. Deystvitel'nyye chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi imeni Popova.

(Wave guides) (Microwaves)

L 19003-63 EWT(1)/BDS AFFTC/ASD MLK(a)
ACCESSION NR: AP3007630 S/0286/63/000/011/0024/0024

B

AUTHOR: Yanovskiy, M. S.; Knyaz'kov, B. N.

TITLE: Variable coaxial phase inverter. 5. Class 21, No. 154901

SOURCE: Byul. izobret. i tovarn. znakov, no. 11, 1963, 24

TOPIC TAGS: variable coaxial phase inverter, coaxial phase inverter, variable phase inverter, phase inverter

ABSTRACT: This Author Certificate introduces an shf variable coaxial phase inverter. In order to simplify its structures, the inverter is designed in the shape of a section of coaxial line. The external rotary conductor of the line is equipped with a dielectric beveled rod; the internal conductor is shifted in relation to the position of the axis. Orig. art. has: 1 figure.

ASSOCIATION: none
SUBMITTED: 24May61
SUB CODE: SD, OE

DATE ACQ: 16Oct63
NO REF SOV: 000

ENCL: 01
OTHER: 000

Card 1/2

L 19003-63
ACCESSION NR: AP3007630

ENCLOSURE: 01

O

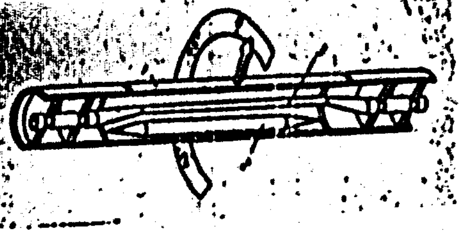


Fig. 1. Variable coaxial phase inverter

1 - External rotary conductor; 2 - dielectric rod; 3 - internal conductor.

Card 2/2

L 36356-66 EWT(l)

ACC NR: AP6005307 SOURCE CODE: UR/0413/66/000/001/0043/0043

44
B

INVENTOR: Knyaz'kov, B. N.; Yanovskiy, M. S.

ORG: none

TITLE: Phase shifter 25 for a quasioptical transmission line. Class 21, No. 177486

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no.1, 1966, 43

TOPIC TAGS: phase shifter, light reflection, transmission line

ABSTRACT: An Author Certificate has been issued describing a phase shifter for a quasioptical transmission line placed in the sharp bend of a line. To control the phase shift without transverse shift of the beam, it is designed as an angular reflector consisting of two horizontal metal mirrors, forming an angle equal to half the angle of the beam deflection in the transmission line, and of a mechanism for

Card 1/2 UDC: 621.316.727

AID P - 5093

Subject : USSR/Engineering

Card 1/1 Pub. 128 - 22/26

Author : Knyaz'kov, L. A., Designer at the "Proletarskaya Svoboda" Plant, Yaroslavl'.

Title : Letter to the editor

Periodical : Vest. mash., 36 5, 91, My 1956

Abstract : The author discusses the accuracy of a formula expressing the radii of inertia of a cross section composed of two channels. According to the author's experience this formula given in different handbooks is not correct. Table, 3 diagrams.

Institution : None

Submitted : No date

KNYAZ'KOV, L.A.; TARSHIS, Yu.D.

Determining the forces acting on the log and the support of the peeling machine. Der.prom. 9 no.12:14-15 D '60. (MIRA 13:12)
(Veneers and veneering) (Woodworking machinery)

KNYAZ'KOV, L.A. (Yaroslavl' branch of the Rezinoproyekt)

Designing a unit for cutting sprayed appratus.

Report presented at the Third All Union Conference on Automation and Mechanization of major rubber production processes, Dnepropetrovsk, 2-6 Oct 62

L 12002-65 EWT(1) IJP(c)/ASD(a)-5/AS(mp)-2/AFWL/AEDC(a)/SSD/AFETR/BSD/ESD(dp)/ ESD(gs)/ESD(t)

ACCESSION NR: AP4045282 S/0057/64/034/009/1694/1700

AUTHOR: Knyaz'kov, L.G.; Krasnova, Ye.K.

TITLE: A high dispersion mass spectrometer employing electrostatic prisms

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.9, 1964, 1694-1700

TOPIC TAGS: mass spectrometer, electron optics

ABSTRACT: The authors discuss the electron-optical design of a high dispersion mass spectrometer employing double magnetic deflection and electrostatic prism. The electrostatic prism has been discussed by V.M. Kel'man and I.V. Rodnikova (ZhTF 32 [illegible]). It consists of three field-free regions of different potentials bounded by [illegible] surfaces disposed as shown in the figure (Enclosure 01). In the designs [illegible] the divergent beam from the source first passes through an electrostatic [illegible] is then successively focused and deflected through [illegible] in opposite directions [illegible] magnetic fields formed between [illegible] and passes through [illegible] before coming to a focus at the detector. The prism produces a virtual image of the source, which serves as object for the magnetic system. This virtual image can be located much farther from the magnetic deflector than is the

1/3

L 12202-65
ACCESSION NR: AP4046282

source, thus making it possible to design a high dispersion instrument of modest size; and at the same time the electrostatic prisms, while contributing no spherical aberration, can be made to compensate the chromatic aberration of the magnetic system. Moreover, the prisms can be so designed as to produce a slight convergence [illegible] plane normal to the deflections and thus to increase the transmission. The [illegible] achromaticity and an expression for [illegible] are derived and [illegible] designs are tabulated. The aberrations due to fringe fields in [illegible] are not discussed. The authors express their deep gratitude to V. M. Kel' [illegible] the topic and for constant attention to the work. Orig. art. has [illegible], 3 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 25Feb64

ENCL: 01

SUB CODE: OP, GP

NR REF SOV: 003

OTHER: 000

2/3

L 15062-65 EWT(1) AEDC(b)/AS(mp)-2/ESD(gs)/ESD(t)
ACCESSION NR: AP4045281 S/0057/64/034/009/1688/1693

AUTHOR: Kel'man, V. M.; Knyaz'kov, L. G.; Krasnova, Ye. K.

TITLE: A high dispersion mass spectrometer with double magnetic deflection

10

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.9, 1964, 1688-1693

TOPIC TAGS: mass spectrometer

ABSTRACT: The authors describe the design and performance of a mass spectrometer employing electrostatic and double magnetic deflection and energy focusing. The instrument has a total ion path length of 3.6 meters, a dispersion of 15 mm per percent mass change, and achieves resolving powers of 6000 with an aperture of 0.02 radian and 8000 with an aperture of 0.017 radian. The principles on which the design of the instrument was based have been discussed earlier (V. M. Kel'man, L. G. Knyaz'kov and Ye. K. Vasil'yeva, ZhTF 30,1192,1960). The spectrometer is diagrammed in the figure (Enclosure 01). The ions are accelerated to 1.4 keV before entering the electrostatic deflector 2 and are further accelerated to 10.5 keV in the lens system 6. This lens system reduces the horizontal divergence of the beam only by accelerating it. The lens is so constructed, however, as to exert a focusing effect in the vertical

L 15052-65
ACCESSION NR: AP4045281

plane, and the beam issuing from the lens is parallel or slightly converging in the plane. The two circular magnetic deflecting fields are formed in two 2 cm gaps in a single closed magnetic circuit, and the distance between their centers is adjustable. Provision is made for photographing the spectrum, recording it electrically, or observing it visually with the aid of an ion-optical image converter. Microphotometer traces of K^{39} lines are presented to illustrate the line shape and the effect on the line width of varying the potential of the ion source. Varying the source potential [illegible] had no appreciable effect on the line width, but varying the potential by [illegible] increased the line width by 50%. The following advantages are claimed for the [illegible] 1) High dispersion is achieved by increasing the ion path length rather [illegible] the size of the deflecting fields; thus the instrument is kept [illegible] 2) The ratio of dispersion to length of ion path is large. Orig. art. [illegible]

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR [illegible] AN SSSR)

SUBMITTED: 24Feb61

ENCL: 01

SUB CODE: OP

NR REF SOV: 003

OTHER: 000

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L 15052-65
ACCESSION NR: AP4045281

ENCLOSURE: 01

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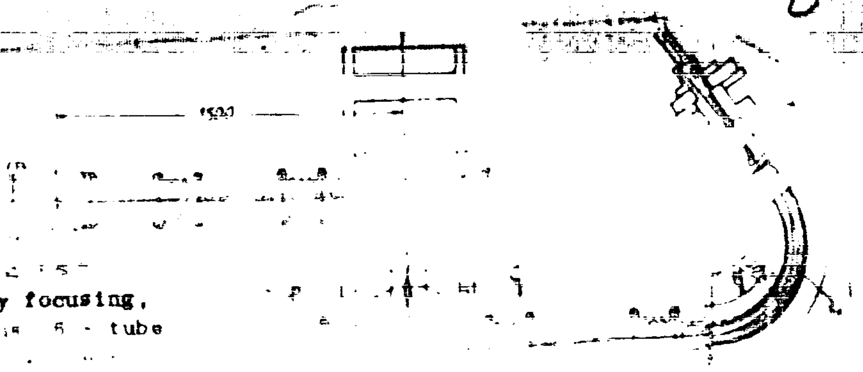
Diagram of the
mass spectrome-

chamber,
slit for energy focusing,
5 - tube



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B013/B063

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AUTHORS: Kel'man, V. M., Knyaz'kov, L. G., and Vasil'yeva, Ye. K.

TITLE: A Magnetic System With Double Deflection Used in Mass Spectrometers With Strong Dispersion

21

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol. 30, No. 10, pp. 1193 - 1198

TEXT: Two schemes of mass spectrometers with double focusing are described, for which a magnetic system consisting of two oppositely directed magnetic fields generated by round poles is used. The basic scheme of one of these spectrometers is shown in Fig. 1. It is shown that the dispersion of this spectrometer may be increased arbitrarily by enlarging the distances l_1' and l_2''. The optical magnification of the spectrometer remains equal to unity. The second scheme is shown in Fig. 2. For the purpose of repeated acceleration of the ion beam, this spectrometer is complemented by a telescopic system shown in Fig. 3, which consists of two immersion lenses. The formulas derived indicate that also the

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84727

A Magnetic System With Double Deflection Used in Mass Spectrometers With Strong Dispersion

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B013/B063

dispersion of this spectrometer may be increased arbitrarily. However, to prevent an excessive increase, it is necessary to use a large cylindrical capacitor. A spectrometer designed according to the first scheme is now being adjusted at the Fiziko-tekhnicheskiy institut (Institute of Physics and Technology). There are 3 figures and 2 references: 1 Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR, Leningrad (Institute of Physics and Technology AS USSR, Leningrad)

SUBMITTED: March 14, 1960

Card 2/3

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B013/B063

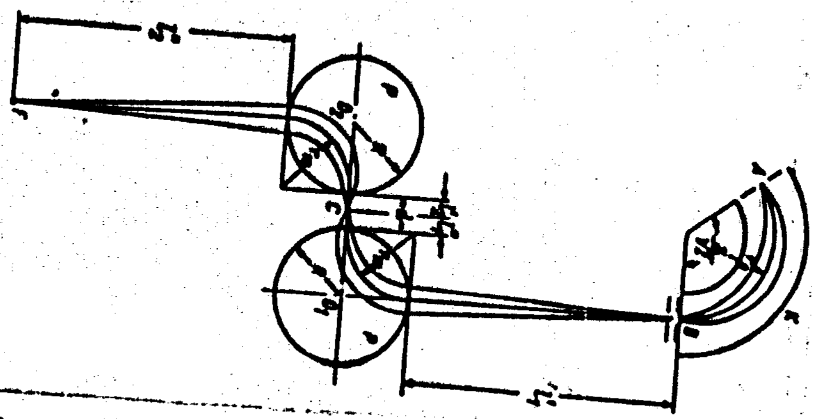

Рис. 1.

Card 3/3

4

KOV, M. A. AND KOKOVIN, I. M. ID NUMBER
941585

Inzhenernoye cherecheniye.
Moscow, 1951. 145 p.

A university textbook on mechanical engineering, drawing, fundamentals, geometric construction, design and reading of engineering blueprints; published as a Govt. Edition of Literature for construction and architecture.

KNYAZ'KOV, M.A., dots.; LUKASHEVA, Ye.K., kand. tekhn. nauk

[Exercises in descriptive geometry] Uprazhneniia po nachertatel'noi geometrii. Izd.4., perer. i dop. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1962. 81 p. (MIRA 16:4)

(Geometry, Descriptive)

1. KNYAZ'KOV, N. M., Eng.

2. USSR (600)

4. Lathes

7. Feeding arrangements for the semi-automatic lather 1261-P. Eng. Podshipnik no. 3 1953

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

KNYAZKOV, S. A.

BA
B-III

Complete mechanization of liming. S. A. Knyazkov (*Sovet. Agron.*, 1951, No. 7, 43 - 48; *Soils & Fert.*, 1951, 14, 178). The construction and efficiency of Russian machines for applying lime are described.

C. B. North.

KNYAZ'KOV, S.A., inzhener.

Gang hitching of fertilizer spreaders. Sel'khozmashina no.2: 17-19 F'55. (MIRA 8:3)
(Fertilizer spreaders)

KNYAZ'KOV, S. A.

Truck-mounted lime spreader. Tekhsov. MTS 17 no.20: 12-15 O '56. (MIRA 9:12)

(Fertilizer spreaders) (Lime)

KNYAZ'KOV, V.F.

Fogs in the region of the Sumy Air Weather Station of the Civil Air Fleet. Trudy UkrNIGMI no.25:31-35 '61. (MIRA 14:8)

1. Aviameteorologicheskaya stantsiya v Grazhdanskom vozdushnom flote, Sumy.

(Sumy region--Fog)

KOMISSAROV, P.M.; KNYAZ'KOV, V.V.

The VGS-3,5 garden hydraulic tree-trimmer truck. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekh.inform. 16 no. 11:73-74 '63. (MIRA 16:11)

KNYAZ'KOVA, A. I., Cand Med Sci -- (diss) "Oxygen therapy and tissue therapy in glaucoma." Khabarovsk, 1960. 21 pp; (Khabarovsk State Medical Inst); 220 copies; price not given; (KL, 17-60, 169)

KLIMOVA, Ye.; SHISHENINA, V.; KNYAZ'KOVA, Ye.

Our experience in the production of raw-smoked sausage. Myas. ind. SSSR 24 no.5:57-58 '53. (MLRA 6:12)

1. 2-y kolbasnyy zavod Leningradskogo myasokombinata. (Sausages)

DARBINYAN, T.M.; CHERNYAKHOVSKIY, F.R.; KNYAZ'KOVA, Z.I.

Modern chloroform anesthesia with the use of a mask and exact dosage for patients with burns. Eksper. khir. i anest. 9 no.1:67 70 Ja-F '64.
(MIRA 17:12)

1. Institut khirirugii imeni Vishnevskogo (dir. - deystvitel'nyy chlen AMN SSSR prof. Vishnevskiy) AMN SSSR, Moskva.

KNYAZOVITSKIY, Yan, professor

Some pathophysiologic data on translumbar aortography. Urologiia 21
no.1:18-21 Ja-Mr '56. (MLRA 9:12)

1. Iz khirurgicheskoy kliniki (nach. Yan Knyazovitskiy) Koshitse
(Chekhoslovakiya)
(AORTA, radiography
translumbar, pathophysiol. aspects)

PALANT, G.Ya., kand. tekhn. nauk; KNYAZ'YAN, G.S., inzh.

Increasing the reliability of mining machines by running-in.
Ugol' Ukr. 9 no.12:21-22 D '65. (MIRA 19:1)

1. Donetskiy nauchno-issledovatel'skiy ugol'nyy institut.

KNYAZYATOV, A. S.

p 3

PHASE I BOOK EXPLOITATION SOV/5333

Pchelintseva, G. M., ed.

Uskoriteli; sbornik statey (Accelerators; Collection of Articles) Moscow, Atomizdat, 1960. 121 p. Errata slip inserted. 5,000 copies printed.

Scientific Ed.: B.N. Yablokov; Ed.: G.M. Pchelintseva; Tech. Ed.: N.A. Vlasova.

PURPOSE: This collection of articles is intended for scientists and engineers engaged in the construction and operation of particle accelerators.

COVERAGE: These original articles treat specific problems arising in the operation of present-day accelerators, particularly linear electron accelerators. A new accelerator put into operation at the Ukrainskiy fiziko-tekhnicheskiy institut (Ukrainian Physicotechnical Institute) is described, and problems in the dynamics of particles in linear electron accelerators are discussed. New methods are discussed for the extraction of particles from accelerators. Problems associated with the shaping of permanent magnetic fields and the acceleration of multicharge ions are also treated. The changeover of the series cyclotron to the phasotron acceleration mode with a view to increasing the energy of accelerated particles

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SOV/5333

Accelerators; Collection of Articles

is described, and some problems connected with the bunching of particles are elaborated. No personalities are mentioned. References accompany each article.

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Vishnyakov, V.A., I.A. Grishayev, P.M. Zeydlits, and A. Ye. Tolstoy. Linear Electron Accelerator up to 6 Mev With Constant Phase Wave Velocity 5

Lomnev, S.P., and G.A. Tyagunov. Some Problems of the Dynamics of Particles in a Linear Electron Accelerator 19

Lomnev, S.P. Bunching of Particles in a Linear Electron Accelerator 33

Matora, I.M. New Scheme for Extraction of Particles From a Phasotron 44

Vorob'yev, A.A., and L.S. Sokolov. Use of Asymmetric Shifting of the Equilibrium Orbit of Electrons for Extraction of Beam From Betatron Chamber 52

Antonov, A.V., Yu. V. Korshunov, Ye. A. Meleshko, L.M. Nemenov, and V.S. Panasyuk. Ferrite Frequency Variator for Changing the Cyclotron to Phasotron Acceleration Mode 60

Card 2/3

Card 3/3

JA/dwm/mas
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40048

S/089/62/013/002/001/011
B102/B104

24.6730

AUTHORS: Babichev, A. P., Venikov, N. I., Knyazyatov, A. S., Meshcherov, R. A., Mironov, Ye. S., Nemenov, L. M., Fedorov, N. D., Kholmovskiy, Yu. A.

TITLE: Control of the magnetic field configuration in a cyclotron

PERIODICAL: Atomnaya energiya, v. 13, no. 2, 1962, 125-134

TEXT: Between 1956 and 1959, experiments were made with a model magnet of one-fifth the full size, made of Ст.-3 (St.-3) steel, in connection with the redesign of the 1.5-m cyclotron belonging to the Ordena Lenina Institut atomnoy energii im. I. V. Kurchatova AN SSSR (Lenin Order Institute of Atomic Energy imeni I. V. Kurchatov, AS USSR). The pole pieces were either cylindrical (370 mm diameter) or conical (300 mm diameter) and the magnet gap was 90 mm wide. The current in the windings could be kept constant to within ±0.1%, and the field strengths were measured with an error of ±0.03-0.1%. The following were investigated: (1) the optimum geometry of the magnet to ensure a field of constant configuration ($\Delta H/H_0(R)$ minimum when H_0 changes), the magnet having

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B102/B104

Control of the magnetic field ...

cylindrical poles and three pairs of caps 14.5 mm thick of different diameters. The best results were obtained using caps with a diameter smaller than that of the poles. Measurements were made not only for $\Delta H/H_0 = f(R)$ with and without shims, but also for $\Delta H/H_0 = f(r)$, where r is the radius of curvature of the caps. The constancy of the field configuration can be improved by replacing the caps by internal shims. (2) Correction of the magnetic field by inserting circular coils in the magnet gap between the caps. Experiments were made with six such coils, of different diameters, mounted on a brass frame. Each winding consisted of five turns of a 4 by 0.5 mm copper tube enclosing a flow of water. The field created by the coils $H_w(R)$ with current (150 a) and without current was measured by a differential method and their effect on the field configuration was studied under various conditions. Shimming seems to be the most convenient way of correcting the field. (3) Sector-type windings. These were used for generating a first harmonic and also for regulating the field. In the case of magnets with dead turns, the field of the first harmonic was measured in dependence on the radius. (4) Correction of the field by annular windings in the shimming gap. These are less effective in the shimming gap than in the magnet gap. (5) Correction of the field

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B102/B104

Control of the magnetic field ...

for azimuthal variation. For this purpose, only one turn (Cu tube 3 by 0.5 mm; maximum current strength 600 a), was used which had the same effect as in an axisymmetric field. There are 15 figures.

SUBMITTED: August 23, 1961

Card 3/3

40049
S/089/62/013/002/002/011
B102/B104

24.6760

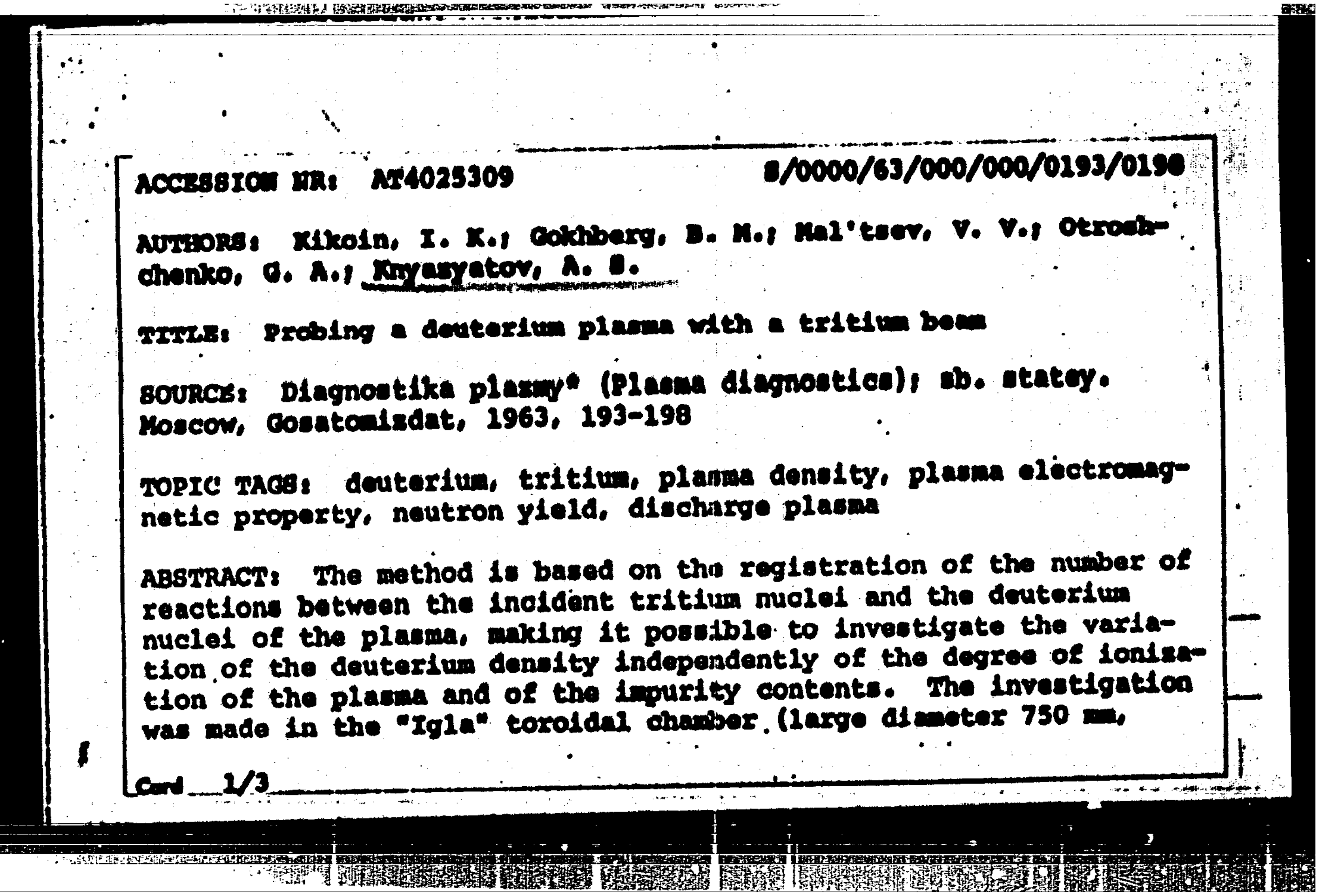
AUTHORS: Afanas'yev, I. I., Knyazyatov, A. S., Fedorov, N. D.

TITLE: Pulsed ion source with low gas consumption

PERIODICAL: Atomnaya energiya, v. 13, no. 2, 1962, 135-140

TEXT: The design and operation of two variaties of pulsed ion sources characterized by especially low gas consumption (10^{-3} cm^3/pulse) are described. These operate on a principle stated by K. Ehlers et al. (Rev. Scient. Instrum., 29, 7, 614, 1958) using titanium disk electrodes impregnated with hydrogen or deuterium. In each case the discharge channel is a pile of these titanium disks stuck together by mica insulations in the first case and is built up under vacuum in the second. The individual disks, slightly impregnated, are separated by small plates of of mica and insulated on both sides by rings of teflon. In both cases, good impregnation of the Ti disks is essential for the discharge. The deuteron current incident on the target (10 mm diameter) is determined by a beam catcher. In the two cases this reaches a strength of 30-40 and of 10 ma, the distances between detector and source being 50 and 120 cm,

Card 1/2



ACCESSION NR: AT4025309 S/0000/63/000/000/0193/0198

AUTHORS: Kikoin, I. K.; Gokhberg, B. M.; Mal'tsev, V. V.; Otroshchenko, G. A.; Knyazyatov, A. S.

TITLE: Probing a deuterium plasma with a tritium beam

SOURCE: Diagnostika plazmy* (Plasma diagnostics); sb. statey. Moscow, Gosatomizdat, 1963, 193-198

TOPIC TAGS: deuterium, tritium, plasma density, plasma electromagnetic property, neutron yield, discharge plasma

ABSTRACT: The method is based on the registration of the number of reactions between the incident tritium nuclei and the deuterium nuclei of the plasma, making it possible to investigate the variation of the deuterium density independently of the degree of ionization of the plasma and of the impurity contents. The investigation was made in the "Igla" toroidal chamber (large diameter 750 mm,

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ACCESSION NR: AT4025309

small diameter 200 mm, maximum capacitor bank energy 35 kJ, maximum discharge current 100 kA). The ion current and the position of the beam were monitored with thermocouples distributed over the channel. The tritium beam source is described elsewhere (I. I. Afanas'yev et al. "Atomnaya energiya" v. 13, No. 8, 135, 1962). The invcstigation of the neutron yield from the ion collector located on the inside of the discharge chamber has made it possible to draw certain conclusions concerning the absorption of the working gas (deuterium) by the walls of the discharge chamber. However, in the case of high-frequency ionization of the gas (preliminary ionization) the walls are capable of absorbing a very large amount of gas. Investigations of the variation of the deuterium plasma density during the discharge time show that the plasma density increases by several times during the discharge, as a result of interaction between the plasma and the walls. When deuterium is used in the discharge chamber, the yield of neutrons decreases immediately after the discharge, compared with the yield in the absence of discharge. In the case of hydrogen, the op-

L 16795-63 EWT(1)/EWG(k)/EWP(q)/EWT(m)/BDS/ES(w)-2 AFFTC/ASD/ 85
ESD-3/AFWL/IJP(C)/SSD Pz-4/Pab-4/Po-4/Pl-4 JD/AT
ACCESSION NR: AP3007057 S/0056/63/045/003/0428/0436

AUTHOR: Gokhberg, B. M.; Kikoin, I. K.; Knyazyatov, A. S.; Mal'tsev, V. V.; Otposhchenko, G. A. [redacted]

TITLE: Use of tritium ion beam to determine deuteron plasma 21 density
27 21

SOURCE: Zh. eksper. i teoret. fiziki, v. 45, no. 3, 1963, 428-436

TOPIC TAGS: deuteron plasma density, toroidal discharge chamber, plasma density measurement, plasma density, plasma

ABSTRACT: A method for investigation of a deuteron plasma by means of a beam of tritium ions introduced into the plasma is described. The method is based on recording the secondary particles resulting from reaction $D(t,n)He^4$, caused by the collision of accelerated tritium ions with the plasma particles. The energy of the injected tritons was approximately 160 Kev, and the energy of the neutrons and alpha particles produced, 14 and 3.5 Mev, respectively. The

Card 1/2

L 16795-63

ACCESSION NR: AP3007057

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investigating device was a toroidal discharge chamber in a weak longitudinal magnetic field. The principal diameter of the toroid was 750 mm, the inner diameter of the discharge chamber, about 210 mm, the intensity of the magnetic field, 200—700 oe, and the maximum discharge current, about 100 kamp. The discharge time in the chamber was approximately 600 μsec, the pulse duration of the ion source, approximately 2000 μsec, and the time delay between the start of the discharge in the chamber and the start of the pulse of the source current, 500—1000 μsec. Measurements were carried out with the discharge chamber filled with deuterium and, as a control, with hydrogen. The average plasma density over the whole path of a tritium beam was determined. Although the plasma density is greater after discharge, the increase cannot be regarded as a result of plasma compression but merely as result of the liberation of gas from the chamber walls during discharge. Orig. art. has: 8 figures.

ASSOCIATION: none

SUBMITTED: 07 Mar 63 DATE ACQ: 08Oct63 ENCL: 00

SUB CODE: PH NO REF SOV: 002 OTHER: 000

Card 2/2

KNYAZYATOV, A.S.; MAL'TSEV, V.V.; OTROSHCHENKO, G.A.

Calorimetric measurements of the intensity of a beam from a pulse ion source. Prib. i tekh. eksp. 9 no.5:46-48 S-O '64.
(MIRA 17:12)

ACCESSION NR: AP4018392 S/0120/64/000/001/0196/0197

AUTHOR: Knyasyatov, A. S.; Mal'tsev, V. V.; Otroshchenko, G. A.

TITLE: Tritium-ion pulsed source

SOURCE: Pribory* i tekhnika eksperimenta, no. 1, 1964, 196-197

TOPIC TAGS: tritium, tritium ion , tritium ion source, tritium ion pulsed source, deuturium plasma, deuterium plasma probing, titanium type tritium source

ABSTRACT: The functioning of a titanium-type tritium pulsed source is described; the source itself was described by N. N. Afanas'yev, et al., earlier (Atomnaya energiya, 1962, 13, no. 8, 135). A 1-mm Ti disk was saturated with T up to an atomic ratio of about 1. Seven other disks were made from stainless steel. The discharge channel was 9 mm in diameter, the emission port 0.7 mm. The discharge-current duration was 500 and 2 microsec. With a discharge

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ACCESSION NR: AP4018392

current of 200 amp, drawing voltage 25 kv, and focusing-gap voltage 85 kv, the maximum current at 100 cm in the 10-mm aperture was as high as 25 ma. The amount of stored T is shown by this fact: after 10,000 pulsed discharges, the beam current had dropped by 30%. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 07Mar63	DATE ACQ: 18Mar64	ENCL: 00
SUB CODE: PH	NO REF SOV: 003	OTHER: 000

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L 55056-65 EWT(l)/EPF(n)-2/EWG(m)/EPA(w)-2 Pz-6/Po-4/Pab-10/Pi-4 IJP(c)
ACCESSION NR: AP5015628 WW/AT UR/0057/65/035/006/1047/1052

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54
B

AUTHOR: Knyazyatov, A.S.; Mal'tsev, V.V.

TITLE: Production of an intense pulsed beam of accelerated tritium atoms

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 6, 1965, 1047-1052

TOPIC TAGS: atom, particle beam, atomic beam, charge exchange, plasma diagnostics, hydrogen, deuterium, tritium

ABSTRACT: An apparatus is described with which 0.5 to 2 μsec pulses of 100 kev tritium atoms can be produced with an intensity equivalent to an ion current of [illegible] ma at 1 m from the source. The apparatus was developed for plasma diagnostics (measurement of deuterium plasma densities by the neutron yield), but pulsed beams of accelerated atoms are useful also for other purposes. The atom beam was produced from an ion beam by charge exchange on a gaseous target. A diagram of the apparatus is shown in Fig. 1 of the Enclosure. The distinctive feature of the apparatus is the use of a pulsed gas jet charge exchange target; this considerably reduces the pumping requirements from those that would have to be met in the case of a continuous flow gas target. The apparatus was so constructed that the diffusion time from

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ACCESSION NR: AP5015628

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[illegible] pulse duration. If the target gas pressure in the vicinity of the target should rise to such a value as to result in electtical breakdown, this would occur only after the pulse was over and would not interrupt operations. Hydrogen was employed as the target gas and an a-c charge exchange efficiency of 60% was achieved. The operation of the apparatus was investigated for different values of the parameters with deuterium as the target gas; this made it possible to follow the motions of the target gas by observing the neutron yield from the tritium ion beam. In these experiments the beam intensity and profile were determined calorimetrically. The results of these experiments [illegible] briefly discussed. "In conclusion, the authors thank I.K.Kikoin for his constant interest in the work, and also V.N.Bobariko for his daily assistance in conducting the experiments." Orig. art. has: 3 formulas and 6 figures. [15]

ASSOCIATION: none

SUBMITTED: 14Aug64	ENCL: 01	SUB CODE: NP, ME
NO REF SOV: 006	OTHER: 001	ATD PRESS: 4027

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ACCESSION NR: AP5015628 ENCLOSURE: 01

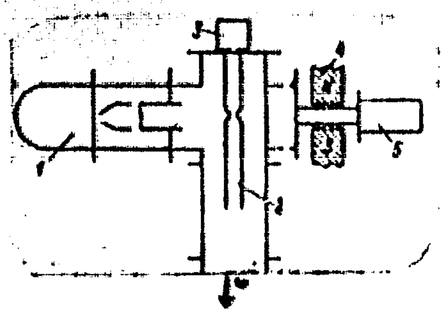

Fig. 1. Diagram of the apparatus

1 - Ion source; 2 - tube containing pulsed gas charge exchange target; 3 - electrodynamic valve; 4 - magnet for removing ions; 5 - beam catcher and measuring instruments; 6 - connection to the pumps.

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KNIAZYATOV, V.I.

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(MIRA 17:3)

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15

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PROCESSES AND PROPERTIES INDEX

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ASA-SLA METALLURGICAL LITERATURE CLASSIFICATION

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